



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-1077; Project Identifier MCAI-2020-00819-A; Amendment 39-21842; AD 2021-24-21]

RIN 2120-AA64

Airworthiness Directives; Embraer S.A. Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Embraer S.A. Model EMB-500 and EMB-505 airplanes. This AD was prompted by a report that the operational envelope does not contain airspeed limitations and procedures for operating the airplane at static air temperatures below -54°C. This AD requires revising the airplane flight manual (AFM) to incorporate new and revised airspeed limitations and procedures. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, contact Phenom Maintenance Support, Avenida Brigadeiro Faria Lima, 2170, P.O. Box 36/2, São José dos Campos, 12227-901, Brazil; phone: +55 12 3927 1000; email: phenom.reliability@embraer.com.br; website: <https://www.embraer.com.br/en-US/Pages/home.aspx>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (816) 329-4148. It is also

available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-1077.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-1077; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Jim Rutherford, Aviation Safety Engineer, FAA, General Aviation & Rotorcraft Section, International Validation Branch, 901 Locust, Room 301, Kansas City, MO 64106; phone: (816) 329-4165; fax: (816) 329-4090; email: jim.rutherford@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all Embraer S.A. Model EMB-500 and EMB-505 airplanes with certain engines installed. The NPRM published in the *Federal Register* on August 2, 2021 (86 FR 41410). The NPRM was prompted by MCAI originated by the Agência Nacional de Aviação Civil (ANAC), which is the aviation authority for Brazil. ANAC issued AD 2020-05-03, effective June 1, 2020 (ANAC AD 2020-05-03) (also referred to after this as “the MCAI”), to correct an unsafe condition on Embraer S.A. Model EMB-500 and EMB-505 airplanes with certain engines installed. Although the affected airplanes were designed for operation at temperatures below -54°C, the operational envelope in the AFM does not contain the necessary limitations and procedures to operate safely in these colder temperatures. The MCAI states that operation of the affected airplanes at static air temperatures below -54°C without these limitations could cause several systems and components to operate inadequately, resulting in multiple systems failures.

Accordingly, the MCAI requires updating the AFM to incorporate a modified operational envelope that establishes restrictions and minimum airspeed required for each static temperature range. In the NPRM, the FAA proposed to require revising the AFM to incorporate the new and revised airspeed limitations and procedures specified in the manufacturer's service information. The FAA is issuing this AD to prevent inadequate operation below the allowable temperature, which could result in multiple systems failures and compromise safe flight of the airplane.

You may examine the MCAI in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-1077.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment on the NPRM from Embraer. The following presents the comment received and the FAA's response to the comment.

Embraer requested that the FAA change the final rule to allow operators to revise the AFM using EMB-500 AFM 2656, Revision 24, dated March 17, 2020, and EMB-505 AFM-2665, Revision 21, dated March 13, 2020, as well as future FAA-approved AFM revisions. Embraer stated that the information in the service information proposed for incorporation by reference has been included in the March 2020 AFM revisions for each model type.

The FAA agrees and has revised the AD to allow use of a different document provided the language is identical to the language in the service information incorporated by reference.

Conclusion

This product has been approved by the aviation authority of another country and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data, considered the comment received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for the changes described previously, this AD is adopted as

proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information under 1 CFR Part 51

The FAA reviewed Embraer Phenom Operational Bulletin No. 500-001/20, dated March 9, 2020; and Operational Bulletin No. 505-005/13, Revision 1, dated March 9, 2020. This service information specifies revising the AFM to incorporate limitations and procedures for the minimum airspeed in the affected region of the operational envelope. These documents are distinct since they apply to different airplane models. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

The FAA estimates that this AD affects 590 airplanes of U.S. registry.

Estimated costs for Revising the AFM

Labor cost	Parts cost	Cost per product	Cost on U.S. operators
.5 work-hour X \$85 per hour = \$42.50	\$0	\$42.50	\$25,075

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2021-24-21 Embraer S.A.: Amendment 39-21842; Docket No. FAA-2020-1077; Project Identifier MCAI-2020-00819-A.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Embraer S.A. Model EMB-500 and EMB-505 airplanes, all serial numbers, certificated in any category, with Model PW617F-E or PW617F1-E

engines (for Model EMB-500 airplanes) or Model PW535E engines (for Model EMB-505 airplanes) installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 0200, Operations.

(e) Unsafe Condition

This AD was prompted by a report that the operational envelope does not contain airspeed limitations and procedures for operating the airplane at static air temperatures below -54°C. The FAA is issuing this AD to prevent inadequate operation below the allowable temperature. The unsafe condition, if not addressed, could result in multiple systems failures and compromise safe flight of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Revision of the Airplane Flight Manual (AFM)

Within 30 days after the effective date of this AD:

(1) For Model EMB-500 airplanes: Revise Section 2 Limitations and Section 5 Performance of the existing AFM for your airplane by incorporating the information in “V - OPERATING INFORMATION,” of Embraer Phenom Operational Bulletin No. 500-001/20, dated March 9, 2020. You may use a different document provided the language is identical to the language in “V - OPERATING INFORMATION,” of Embraer Phenom Operational Bulletin No. 500-001/20, dated March 9, 2020.

(2) For Model EMB-505 airplanes: Revise Section 2 Limitations, Section 5 Performance, and Supplement 2 of the existing AFM for your airplane by incorporating the information in “V - OPERATING INFORMATION,” of Embraer Phenom Operational Bulletin No. 505-005/13, Revision 1, dated March 9, 2020. You may use a different document provided the language is identical to the language in V - OPERATING INFORMATION,” of Embraer Phenom Operational Bulletin No. 505-005/13, Revision 1, dated March 9, 2020.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

Send your request to the person identified in paragraph (i)(1) of this AD and email: 9-AVS-AIR-730-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspection, the manager of the local Flight Standards District Office.

(i) Related Information

(1) For more information about this AD, contact Jim Rutherford, Aviation Safety Engineer, FAA, General Aviation & Rotorcraft Section, International Validation Branch, 901 Locust, Room 301, Kansas City, MO 64106; phone: (816) 329-4165; fax: (816) 329-4090; email: jim.rutherford@faa.gov.

(2) Refer to Mandatory Continuing Airworthiness Information (MCAI) Agência Nacional de Aviação Civil AD 2020-05-03, effective June 1, 2020, for related information. This MCAI may be found in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-1077.

(j) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Embraer Phenom Operational Bulletin No. 500-001/20, dated March 9, 2020.

(ii) Embraer Phenom Operational Bulletin No. 505-005/13, Revision 1, dated March 9, 2020.

(3) For service information identified in this AD, contact Phenom Maintenance Support, Avenida Brigadeiro Faria Lima, 2170, P.O. Box 36/2, São José dos Campos, 12227-901, Brazil; phone: +55 12 3927 1000; email: phenom.reliability@embraer.com.br; website: <https://www.embraer.com.br/en-US/Pages/home.aspx>.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on November 19, 2021.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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